

Attorney Docket: K-1633
S.N.: 09/678,923

2. Section 102(b) Rejection of Claims 1, 2 and 7

Claims 1, 2 and 7 stand rejected under 35 U.S.C. 102(b) as being anticipated by Tsujimura et al. (4,844,666). The Office Action provides:

"Tsujimura et al. discloses the claimed invention comprising, as shown in Fig. 15, a tool body having an outer surface thereon and a central axis therein and including at least a first (including 24a) and second (including 24b) spiraling flute in the outer surface, each flute including a plurality of inserts (24a, 24b) secured therein to define an axial rake angle (α_1 , α_4), wherein the axial rake angle of an axial rake angle of the inserts varies between flutes and within each flute.

Note Tsujimura et al. also discloses the limitations described in claims 2-14, such as all of the inserts (24a, 24b) on the entire tool body being identical; the inserts each having a cutting edge and the cutting edges on inserts with differing axial rake angles have differing cutting edge lengths."

In order for a reference to be an anticipatory reference, the reference must disclose each and every element of the claimed invention. It is respectfully submitted that Tsujimura does not teach or suggest all the elements recited in the claims.

The Tsujimura patent appears to disclose an insert rotary cutting tool that includes a tool body of a generally circular cross-section having an axis of rotation therethrough and having an outer periphery. As shown in the figures, the rake angle of the inserts does not vary between flutes and within each flute to provide all effective cutting. For example, as shown in FIGS. 6, 9, 12, and 15 the rake angle of alternating helical lines are the same. Consequently, the cutting tool is only a half-effective design as opposed to the all effective design as claimed. ?

For at least these reasons, Claim 1 is allowable over the applied art. Claims 2 and 7 depend from Claim 1 and are likewise allowable over the applied art for at least the same reasons described above for Claim 1. Withdrawal of the rejection is respectfully requested.

3. Section 103(a) Rejection of Claims 3-6 and 8-14

Claims 3 - 6, and 8-14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tsujimura et al. in view of Dutschke et al. (5,425,603). The Office Action provides:

"Tsujimura et al. discloses the claimed invention except for: the tool body including three spiraling flutes; the actual lengths of adjacent inserts in any flute circumferentially overlap.

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Dutschke et al. discloses a cutting insert comprising the tool body including three spiraling flutes (18); the actual lengths of adjacent inserts in any flute circumferentially overlap as shown in Figs. 3a, 3b.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Tsujimura et al.'s insert to comprise the tool body including three spiraling flutes; and the actual lengths of adjacent inserts in any flute circumferentially overlap, as taught by Dutschke et al., in order to simplify the structure, and to facilitate the cutting process, such as better guiding the chip flow in different machining conditions for the Tsujimura et al.'s tool."

To establish a *prima facie* case of obviousness, three criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the applied reference must teach or suggest all the claim limitations (See MPEP §2143).

It is respectfully submitted that the Office Action does not meet the criteria for establishing a *prima facie* case of obviousness.

Neither Tsujimura nor Dutschke teach or suggest the rake angle of the inserts varying between flutes and within each flute to provide all effective cutting. Accordingly, neither of the applied references teach or suggest all the features recited in the claims such that a *prima facie* case of obviousness is found.

For at least these reasons, Claims 1 and 8 are allowable over the applied art. Claims 3-6 and 9-14 depend from Claims 1 and 8 and are likewise allowable over the applied art for at least the same reasons described above for Claims 1 and 8. Withdrawal of the rejection is respectfully requested.

4. Extension of Time

In the event applicant(s) has overlooked the need for any petition and fee for extension of time, and such extension is required, applicant(s) requests that this be considered a petition therefor and that such fee be charged to Deposit Account No. 11-0508.

5. Request For Telephone Interview

As a final matter, if the Examiner has any suggestions concerning different claim phraseology that, in the opinion of the Examiner, more accurately defines the present

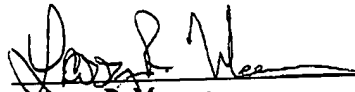
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invention, prior to issuance of another Office Action, Applicant's undersigned attorney requests the courtesy of a telephone interview at the Examiner's earliest convenience to discuss the application. Applicant's undersigned attorney may be contacted at (724) 539-5485.

6. Conclusion

In view of the amendments and above remarks, it is believed that the application is in condition for allowance. Accordingly, an early Notice Of Allowance is respectfully requested.

Respectfully submitted,



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MARKED UP VERSION OF ALL AMENDED CLAIMS

1.(Once Amended) [A] An all effective cutting tool for cutting a workpiece comprising:

a tool body having an outer surface thereon and a central axis therein and including at least a first and second spiraling flute in the outer surface, each flute including a plurality of inserts secured therein to define an axial rake angle, wherein the axial rake angle of the inserts varies between flutes and within each flute to provide all effective cutting.

8.(Once Amended) A cutting tool comprising:

a tool body with a central axis therein and an outer surface thereon, the tool body including at least a first and second spiraling flute in the outer surface, each spiraling flute including a plurality of inserts secured therein, the inserts in all of the flutes being identical, and wherein the inserts in the first flute are secured so as to be of a first effective axial length while the inserts in the second flute are secured so as to be of a second effective axial length different from the first effective axial length to provide all effective cutting, the inserts each have a cutting edge and the cutting edges on adjacent inserts in any flute do not circumferentially overlap, wherein each insert has an actual length longer than the cutting edge, and the actual lengths of adjacent inserts in any flute circumferentially overlap.